

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant : R. Donovan, et al.

Art Unit : 3724

Serial No. : 10/774,335

Examiner : S. Choi

Filed : February 6, 2004

Title : Band Saw

**APPEAL BRIEF
BRIEF ON BEHALF OF APPELLANTS**

This is an appeal brief in support of an appeal from the action of the Examiner dated January 9, 2009, finally rejecting claims 1 – 5, 11 – 16, 22, 25 – 30, 36 and 39 of the present application. A listing of the appealed claims are attached as an appendix.

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I. Real Party In Interest

The real party in interest in the present application is Delta International Machinery Corporation who is the current assignee of the application. Delta International Machinery Corporation is a subsidiary of The Black & Decker Corporation.

II. Related Appeals and Interferences

There are no known related appeals or interferences which will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision in the pending appeal.

III. Status Of The Claims

Claims 1 – 39 and 43 - 45 are pending in the present application. Claim 23, 24, 37, 38 and 43 – 45 have been withdrawn from consideration. Claims 1 – 5, 11 – 16, 22, 25 – 30, 36 and 39 stand rejected as indicated in the Office Action mailed on January 6, 2009, the Advisory Action mailed on March 11, 2009 and the Notice of Panel Decision from Pre-Appeal Brief Review mailed on June 22, 2009. Claims 1 – 5, 11 – 16, 22, 25 – 30, 36 and 39 are the subject of this appeal.

IV. Status Of Amendments

Applicant's response after final rejection did not propose any amendments to the pending claims. Pending claims are found in the appendix below.

V. Summary of the Claimed Subject Matter

The present invention is specifically set forth in the presently pending claims. Applicant's invention relates generally to a tensioning mechanism. In the exemplary embodiments illustrated and described in the instant specification, the tensioning mechanism is used to enable the removal and replacement of a blade on a stationary band saw.

An example of the present invention, as set forth in presently pending claim 1, is directed to a tensioning mechanism including a tension spring assembly for applying a tensioning force and a cam assembly for applying a force to the tension spring assembly.

Another example of the present invention, as set forth in the presently pending claim 12, is directed to a band saw including a frame coupled to an upper band wheel wherein the wheel engages the band saw blade. The band saw also includes a tension spring assembly wherein the tension spring assembly applies a tensioning force to the upper band wheel. The band saw also includes a cam assembly that operationally engages the tension spring assembly wherein the cam assembly applies a force to the tension spring assembly.

Another example of the present invention, as set forth in the presently pending claim 26, is directed to a band saw having an upper band wheel which operationally engages a band saw blade. The band saw also includes an upper arm including a sliding tension bracket which is coupled to the upper band wheel. The band saw includes a tension spring assembly having a tension spring. The tension spring applies a tension force which is translated through the sliding tension bracket to the upper band wheel. The band saw also includes a cam assembly that is operationally engaged with the tension spring assembly,

wherein the cam assembly applies a force to the tension spring.

VI. Grounds of Rejection to be Reviewed on Appeal

Whether Claims 1 – 5, 11 – 16, 22, 25 – 30, 36, and 39 are anticipated under 35 U.S.C §102(e) by U.S. Patent No. 6,557,447 to Lee under?

VII. Arguments

- I. The rejection of 1 – 5, 11 – 16, 22, 25 – 30, 36, and 39 are anticipated under 35 U.S.C §102(e) by U.S. Patent No. 6,557,447 to Lee under is improper.

The present invention is specifically set forth in the presently pending claims. In order to be brief and solely for purposes of this Appeal Brief, Applicants are focusing solely on two features distinguishing the present invention from the applied reference. Applicants reserve the right to argue these features or any other features distinguishing the present invention from any applied references in future submissions. As set forth, for example, in claim 1, one configuration of the present invention includes, among other components, a tension spring assembly for applying **a tension force** and a cam assembly **applying a force to** the tension spring assembly.

The Office Action mailed January 6, 2009 and the Advisory Action mailed March 31, 2009 allege that the Lee reference includes a tension spring assembly and a cam assembly applying a force to the spring assembly. Applicants respectfully submit that the Lee reference does not include a tension spring assembly or such a cam assembly.

With regard to the tension spring assembly element, tension is defined as the magnitude of the pulling force exerted by a string, cable, chain, or similar object on another object. It is the opposite of compression. Applicants respectfully submit that the spring (70) disclosed and described in the Lee reference applies a compressive force and not a tension force, as recited in the presently pending independent claims. As stated in

column 3, lines 14 – 18, “A second elastic member 70 of the present invention is a spiral spring, which is fitted over the auxiliary rod 63 such that the bottom end of the spring urges the support portion 62, and that the top end of the spring urges the underside of the seat block 40.” (emphasis added) The term urges is clearly used as a synonym for pushes or compresses, which is the opposite of pulling. As such, the spring 70 described in the Lee reference applies a compressive force, which is the exact opposite of a tension force recited in the presently pending independent claims.

With regard to the cam assembly, Applicants respectfully submit that the Lee reference does not include such a cam assembly. The cam assembly (as defined in the Office Action to include elements 30, 34, 35, 33 and 32) of the Lee reference does not apply a force to the spring assembly (as defined in the Office Action to include elements 70, 60/61, and 40). Contrary to this position, it is the force of gravity acting on the driven wheel 17, the slide seat 20, first elastic member 50, and the seat block 40 which acts to compress (apply a force to) the spring 63.

Two points that may be unclear should be addressed. First, the cam assembly of the Lee reference (illustrated in Figure 4) is not fixedly attached to the slide seat 20, the stop plate 25, the elastic member 50, or the seat block 40. The cam assembly only contacts the cross rod 22 to move the cross rod and the aforementioned elements up (applying a force in opposition to the force of gravity) or to allow the force of gravity to move the cross rod and the aforementioned elements down.

Second, there is no indication in the Lee reference specification that a spring assembly could include anything more than the spring 70, the auxiliary rod 63 and the support portion 62. No other elements are described as being part of such an assembly.

As such, it would not be reasonable to assert that, by the eccentric wheel 30 applying a force to the cross rod 22 it is applying a force to a spring assembly. It would not be reasonable to assert that the cross rod 22 is part of a spring assembly.

Contrary to the present invention, the Lee reference discloses a system in which, "The eccentric wheel 30 is capable of deflection between a first angle position and a second angle position. As shown in FIG. 3, when it is at the first angle position the long diameter portion 34 urges upward the press portion 22 of the slide seat 20, so as to push upwards the slide seat 20 to an upper stop point. When the eccentric wheel 30 is at the second angle position, as shown in FIG. 5, the short diameter portion 35 comes in contact with the press portion 26. **The slide seat 20 is caused by its own weight to descend to a lower stop point.**" Lee at Col. 2, ll. 39-48.

When the cam member 30 is in the first position (shown in Figure 3) it forces the cross rod 22 upward which in turn forces the slide seat 20 upwards (working against the force of gravity). This in turn moves the stop plate 25 upward. This in turn allows compressed spring 63 to push the seat block 40 and elastic member 50 upwards and therein tighten the saw blade.

As noted above, in the second position (shown in Figure 5), as the short side of the eccentric wheel 30 engages the cross rod 22, the force of gravity forces the slide seat 20 downward and in turn moves the stop plate 25 downward which in turn moves the elastic member 50 downward which in turn moves the seat block 40 downward and applies a force to the spring 70. It is clearly not the cam assembly that applies the force to the spring assembly.

The device disclosed in the Lee reference does not disclose, teach or suggest a

cam assembly for applying a force to a tension spring assembly, as recited in the independent claims of the present application. In fact, the Lee reference discloses just the opposite. Specifically, operationally when the wrenching member 36 of the Lee device is turned counterclockwise from the position in Figure 3 to the position in Figure 5, the distance between the lower surface 26 of the cross rod 22 and the axis of the wheel 30 is decreased allowing the force of gravity to move the slide seat 20 downward. As gravity forces the slide seat 20 (which is, according to the Office Action, not part of the cam assembly) to move downward the spring 70 compresses. The slide seat 20 moves downward due to its own weight (gravity applied to the slide seat's mass).

Contrary to the present invention and the position taken in the Office Action, when the wrenching member 36 is moved clockwise (from the position in Figure 5 to the position in Figure 3) the eccentric wheel 30 forces the rod 22 and the slide seat 20 upwards counteracting the force of gravity on the slide seat thereby decreasing the force applied to the spring 70.

Clearly, the Lee reference does not disclose a cam assembly for applying a force to a tension spring. To the contrary, the eccentric wheel serves to decrease force applied to the spring 70.

To the examiner's comment in the Advisory Action of March 31, 2009, "Lee teaches the cam assembly that is coupled to the sliding tension bracket (e.g., 20) which includes a stop plate (e.g., 25) which is operationally coupled to the plunger (e.g., 40) which is operationally coupled to the tension spring (e.g., 70). The cam (e.g., 30) is pivoted with the plunger (e.g., 40) and the tension spring (e.g., 70) urges the underside of the plunger (e.g., 40)." The statement, "The cam (e.g., 30) is pivoted with the plunger

(e.g., 40)" which can be seen in the Lee reference (col. 2, line 66), is somewhat misleading.


While the cam 30 and the seat block 40 do move in unison, the cam 30 does not apply the force to the seat block. The stop plate 25 is connected to the slide seat 20 (Lee at col. 2, line 26). When the wheel 30 rotates from the position in figure 3 to the position in figure 5, gravity acts on the mass of the slide seat 20 forcing the slide seat 20 and the stop plate 25 downward. That forces the elastic member 50 which forces the seat block 40 downwards. The seat block 40 in turn applies a force to the spring 70. As such, in the Lee reference, it is not the wheel (cam assembly) which applies a force to the tension spring.

Accordingly, applicants respectfully request the Board to reconsider and withdraw these rejections.

For the foregoing reasons, the appealed claims are patentably distinguishable over the art relied upon by the Office. Accordingly, Applicant's representative respectfully requests that this Board reverse the final rejection of Claims 3 – 6, 11 -14, 18, 20 and 23.

Respectfully submitted,

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VIII. Claims Appendix

1. (Previously Amended) A tensioning mechanism, comprising:
 - a tension spring assembly for applying a tensioning force;
 - a cam assembly, the cam assembly applying a force to the tension spring assembly;
 - a cover assembly adjustably coupled with the cam assembly, the cover assembly including a handle for enabling a user to selectively engage the cover assembly with the cam assembly in an index position, the handle having a first tensioning position and a second tensioning position for translating the user selected tensioning force to the tension spring assembly through the cam assembly; and
 - an index indicator coupled with the cover assembly, the index indicator for indicating the index position for the cover assembly to enable the translation of the desired tensioning force,
 - wherein the index indicator enables the quick selection by the user of the amount of tensioning force to be applied.
2. (Previously Amended) The tensioning mechanism of claim 1, wherein the tensioning mechanism is incorporated in a band saw.
3. (Previously Amended) The tensioning mechanism of claim 1, wherein the tension spring assembly further comprises:
 - a tension spring for applying the tensioning force;
 - a fine adjustment assembly coupled with the tension spring, the fine adjustment assembly for enabling a fine adjustment of the tension spring; and
 - a plunger coupled with the fine adjustment assembly, the plunger for translating the force from the cam assembly to the tension spring.
4. (Previously Amended) The tensioning mechanism of claim 1, wherein the cam assembly further comprises:
 - a cam including a cam actuation member and a pin, the cam for coupling with the

tension spring assembly; and

a cam actuator coupled with the cam actuation member,

wherein the cam assembly applies a force to the tension spring assembly.

5. (Original) The tensioning mechanism of claim 4, wherein the pin couples with the tension spring assembly.

6. (Original) The tensioning mechanism of claim 1, wherein the cover assembly further comprises:

a cover coupled with the handle, the cover enabled to selectively engage with the cam assembly;

a biasing assembly coupled with the cover, the biasing assembly enabling the selective engagement of the cover with the cam assembly; and

an index indicator coupled with the cover, the index indicator establishing a visual marker for user identification of the index position of the cover.

7. (Original) The tensioning mechanism of claim 6, wherein the biasing assembly includes a biasing member coupled with a spring, wherein the biasing assembly enables the handle and cover into a first biasing position and second biasing position.

8. (Original) The tensioning mechanism of claim 6, wherein the visual marker is selected from the group consisting of a line, an arrowed line, a symbol, a logo, a numeric representation, and a textual representation, for identifying the index position.

9. (Original) The tensioning mechanism of claim 6, wherein the handle may be established in a plurality of positions.

10. (Original) The tensioning mechanism of claim 6, wherein the handle is removable from the cover.

11. (Original) The tensioning mechanism of claim 1, further comprising a securing assembly.

12. (Previously Amended) A band saw including a frame coupled with an upper band wheel which operationally engages a band saw blade, comprising:

- a tension spring assembly operationally engaged with an upper arm of the frame, the tension spring assembly applying a tensioning force to the upper band wheel;

- a cam assembly operationally engaging with the tension spring assembly, the cam assembly applying a force to the tension spring assembly; and

- a cover assembly adjustably coupled with the cam assembly, the cover assembly including a handle for enabling a user to selectively engage the cover assembly with the cam assembly in an index position, the handle having a first tensioning position and a second tensioning position for translating the user selected tensioning force to the tension spring assembly through the cam assembly; and

- an index indicator coupled with the cover assembly, the index indicator for indicating the index position for the cover assembly to enable the translation of the desired tensioning force,

wherein the index indicator enables the quick selection by the user of the amount of tensioning force to be applied to the band saw blade.

13. (Previously Amended) The band saw of claim 12, wherein the tension spring assembly further comprises:

- a tension spring for applying the tensioning force;

- a fine adjustment assembly coupled with the tension spring, the fine adjustment assembly for enabling a fine adjustment of the tension spring; and

- a plunger coupled with the fine adjustment assembly, the plunger for translating the force from the cam assembly to the tension spring.

14. (Previously Amended) The band saw of claim 12, wherein the cam assembly further comprises:

a cam including a cam actuation member and a pin, the cam for coupling with the tension spring assembly; and a cam actuator coupled with the cam actuation member, wherein the cam assembly applies a force to the tension spring assembly.

15. (Previously Amended) The band saw of claim 14, wherein the pin couples with the tension spring assembly.

16. (Previously Amended) The band saw of claim 14, wherein the pin is removable from the cam.

17. (Previously Amended) The band saw of claim 12, wherein the cover assembly further comprises:

a cover coupled with the handle, the cover enabled to selectively engage with the cam assembly;

a biasing assembly coupled with the cover, the biasing assembly enabling the selective engagement of the cover with the cam assembly; and

an index indicator coupled with the cover, the index indicator establishing a visual marker for user identification of the index position of the cover.

18. (Previously Amended) The band saw of claim 17, wherein the biasing assembly includes a biasing member coupled with a spring, wherein the biasing assembly enables the handle and cover into a first biasing position and second biasing position.

19. (Previously Amended) The band saw of claim 17, wherein the visual marker is selected from the group consisting of a line, an arrowed line, a symbol, a logo, a numeric representation, and a textual representation, for identifying the index position.

20. (Previously Amended) The band saw of claim 17, wherein the handle is removable from the cover.

21. (Previously Amended) The band saw of claim 17, wherein the handle may be established in a plurality of positions.

22. (Previously Amended) The band saw of claim 12, further comprising a securing assembly.

23. (Withdrawn) The tensioning mechanism of claim 12, wherein the band saw further comprises a cabinet dust collection system.

24. (Withdrawn) The tensioning mechanism of claim 12, wherein the band saw further comprises a positive angle stop assembly.

25. (Previously Amended) The band saw of claim 12, wherein the band saw further includes a standard blade tensioning device.

26. (Previously Amended) A band saw having a frame coupled with a lower band wheel, the lower band wheel operationally engaged by a motor, an upper band wheel, the upper band wheel vertically aligned with the lower band wheel and operationally engaging a band saw blade, and an upper arm including a sliding tension bracket, the sliding tension bracket coupled with the upper band wheel, comprising:

- a recessed area defined within the sliding tension bracket;

- a tension spring assembly having a tension spring disposed within the recessed area, the tension spring for applying a tensioning force which is translated through the sliding tension bracket to the upper band wheel;

- a cam assembly operationally engaging with the tension spring assembly, the cam assembly applying a force to the tension spring; and

- a cover assembly adjustably coupled with the cam assembly, the cover assembly including a handle for enabling a user to selectively engage the cover assembly with the cam assembly in an index position, the handle having a first tensioning position and a second tensioning position for translating the user selected tensioning force to the

tension spring assembly through the cam assembly; and

an index indicator coupled with the cover assembly, the index indicator for indicating the index position for the cover assembly to enable the translation of the desired tensioning force,

wherein the index indicator enables the quick selection by the user of the amount of tensioning force to be applied to the band saw blade based on the size of the band saw blade.

27. (Previously Amended) The band saw of claim 26, wherein the tension spring assembly further comprises:

a fine adjustment assembly coupled with the tension spring, the fine adjustment assembly for enabling a fine adjustment of the tension spring; and a plunger coupled with the fine adjustment assembly, the plunger for translating the force from the cam assembly to the tension spring.

28. (Previously Amended) The band saw of claim 26, wherein the cam assembly further comprises:

a cam including a cam actuation member and a pin, the cam for coupling with the tension spring assembly; and

a cam actuator coupled with the cam actuation member, wherein the cam assembly applies a force to the tension spring assembly.

29. (Original) The band saw of claim 28, wherein the pin couples with the tension spring assembly.

30. (Original) The band saw of claim 28, wherein the pin is removable from the cam.

31. (Original) The band saw of claim 26, wherein the cover assembly further comprises:

a cover coupled with the handle, the cover enabled to selectively engage with the

cam assembly;

a biasing assembly coupled with the cover, the biasing assembly enabling the selective engagement of the cover with the cam assembly; and

an index indicator coupled with the cover, the index indicator establishing a visual marker for user identification of the index position of the cover.

32. (Original) The band saw of claim 31, wherein the biasing assembly includes a biasing member coupled with a spring, wherein the biasing assembly enables the handle and cover into a first biasing position and second biasing position.
33. (Original) The band saw of claim 31, wherein the visual marker is selected from the group consisting of a line, an arrowed line, a symbol, a logo, a numeric representation, and a textual representation, for identifying the index position.
34. (Original) The band saw of claim 31, wherein the handle is removable from the cover.
35. (Original) The band saw of claim 31, wherein the handle may be established in a plurality of positions.
36. (Original) The band saw of claim 26, further comprising a securing assembly.
37. (Withdrawn) The band saw of claim 26, further comprising a cabinet dust collection system.
38. (Withdrawn) The band saw of claim 26, further comprising a positive angle stop assembly.
39. (Original) The band saw of claim 26, further includes a standard blade tensioning device.

40-42. (Cancelled)

43. (Withdrawn) A method for adjusting the tension of a band saw blade operationally coupled with an upper band wheel of a band saw, comprising:

positioning a tension mechanism comprising a tension spring assembly operationally engaged with the upper band wheel, a cam assembly coupled with the tension spring assembly, a cover assembly which may be selectively engaged with the cam assembly by a user, and an index indicator enabling the user to quickly determine an index position of the cover assembly based on the size of the band saw blade, followed by at least one step selected from the group consisting of;

positioning the cover assembly, relative to the cam assembly, in the index position indicated by the index indicator, and rotating a handle of the cover assembly from a first tensioning position to a second tensioning position whereby the tension spring assembly moves the upper band wheel in a first linear direction increasing tension on the band saw blade; and

rotating the handle to the first tensioning position from the second tensioning position whereby the tension spring assembly moves the upper band wheel in a second direction decreasing tension on the band saw blade.

44. (Withdrawn) The method of claim 43, further comprising the step of determining operation of the band saw after the tension handle has been rotated into the first or second tensioning positions.

45. (Withdrawn) The method of claim 43, further comprising the step of adjusting the tensioning force provided by the tension mechanism through engagement with a fine adjustment assembly with the handle positioned in the second tensioning position..

IX. Evidence Appendix

None

X. Related Proceedings Appendix

None
